Economic Evaluation of the Darwin Festival

Assessment of the economic impact of the Darwin Festival 2007 on the Northern Territory economy

Produced in collaboration with

Darwin Festival

Charles Darwin University

Northern Territory Treasury

Summary

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Expenditure by visitors attributable to the Festival	1 226 865
plus Festival revenue from external sources	146 100
equals Total expenditure attributable to the Festival	1 372 965
Total economic impact (including multiplier effect)	1 143 277

Objectives of Study

The aim of this study is to pilot a methodology for measuring the economic impact of festivals and similar events in the Northern Territory. The study builds on a previous study *Assessing the Value and Contribution of the Darwin Festival 2004*.

The study attempts to estimate the net effect that the Darwin Festival 2007 (the Festival) had on the Territory economy. That is, the economic activity that the Festival generated that would not have otherwise occurred.

It is important to note that this is a trial study, and the results should be considered experimental. Potential issues are discussed in more detail on page 4, "Reliability of results".

While this study has focussed on the net impact of the Darwin Festival on the Northern Territory economy, it is possible for future studies to examine the impact of such an event on a smaller geographical area.

Background

Economic impact studies are widely used in Australia and overseas to evaluate arts, cultural and sporting events, and are a means of estimating the net effect that a discrete event has on an economy. Such studies aim to measure the additional expenditure that the event stimulates throughout an economy, not including expenditure that has been redirected from other uses within the study area.

By definition, the scope of economic impact studies is quite narrow. The value that is captured by such a study, being the net impact of the event on total economic activity, represents only a part of the value that can accrue to a host community of an arts or cultural event.

This is particularly the case for an event such as the Darwin Festival, which has a relatively small profile outside of the Territory, and thus does not attract a significant number of interstate and international visitors or a large amount of externally sourced sponsorship. As the net economic impact of an event comes primarily from such external sources, the economic contribution by events such as the Darwin Festival, as measured by such studies, is typically fairly small.

There are a range of other economic and social costs and benefits that arts events generate. These include; positive impacts on voluntary activity, civic pride and social cohesion, enhancing the appeal of Darwin and the Territory as a place to live, raising the tourism profile of the Territory, and contributing to the artistic development of local artists and artistic works. Large scale, high profile events such as the Darwin Festival also draw audience and participants from a wide cross-section section of the local community, thus enhancing many of the positive impacts listed above.

There are also a number of potential costs that are not captured in economic impact studies. Festivals can generate significant additional demand for tourism services, public transport, restaurants and cafes and so on. This additional demand can "crowd out" some existing demand, thus reducing the net economic benefit that the festival generates. While the Darwin Festival is held during the peak tourist season, the small proportion of tourists who come to Darwin specifically to attend the Festival means that the potential for crowding out is likely to be fairly limited.

In addition, economic impact studies do not provide an indication as to what level of resources government should allocate to an event (such as the Festival) as such studies do not take into account the opportunity cost of government funding. To do this, one needs to compare the total net benefit that would accrue from a given amount of government funding, relative to the net benefit that would result from the best alternative use of those funds.

However, as the full range of costs and benefits, including those listed above, can be difficult to measure, accurate and comprehensive cost-benefit analysis of an arts event is extremely difficult.

This study extends the survey methodology adopted in the study *Assessing the Value and Contribution of the Darwin Festival 2004*, and incorporates the approach recommended in the publication *Measuring the Impact of Festivals – Guidelines for conducting an economic impact study*.

Results

Table 1 shows the results of the data analysis. Estimated visitor expenditure that was attributable to the Festival was $1.23 million. Darwin Festival revenue identified as sourced outside the Territory was $146 100, resulting in a total direct economic impact of $1.37 million.

Value-added multipliers for the Northern Territory were applied to the expenditure data (visitor expenditure plus the Darwin Festival revenue from interstate) in order to estimate the total impact that the Festival had on the economy. This captures the additional economic activity that the initial expenditure stimulates, in the form of extra wages and salaries earned which is then re-spent in other parts of the economy, as well as spending by business on the inputs required from other industries for production.

For a small economy such as the Northern Territory, most value-added multipliers are less than one, which means that the impact on total output is less than the initial expenditure. This reflects the high degree of openness of the Territory economy to interstate and overseas goods and services, whereby a significant amount of the initial expenditure was spent on imports to the Territory.

For example, a large proportion of visitor expenditure was used to purchase food and beverages while Festival attendees were in the Territory. However, many of these items would have been produced interstate, or produced locally using ingredients sourced from interstate. Thus the total value of the expenditure on these items does not remain within the Territory.

After applying Territory value-added multipliers to the visitor expenditure and Festival revenue data, the total economic impact of the Festival fell to $1.14 million.

The largest expenditure category by visitors was ‘accommodation’, representing 29 per cent of total visitor expenditure, followed by ‘food and beverages’ (20 per cent), and ‘pleasure shopping’ (19 per cent) (see Chart 1).

Table 1: Economic Impact

	$
Visitor expenditure attributable to Festival	
Food & beverages	*248 165*
Accommodation	*339 574*
Tours in the NT	*111 340*
Transport in the NT	*126 965*
Entertainment	*122 502*
Pleasure shopping	*237 949*
Other expenditure	*40 370*
Total visitor expenditure attributable to Festival	1 226 865
Darwin Festival revenue from external sources	146 100
Total direct economic impact	1 372 965
Total economic impact (including multiplier effect)	**1 143 277**

Table 2: Estimated number of people attending the Festival

Locals	*8 553*
Visitors	*3 849*
Total attendance	12 402
Total ticket sales*	28 055
Average number of shows per person	2.3

*Data provided by the Darwin Festival

The estimated total number of people (both visitors and locals) who attended the Festival was 12 402, comprised of 8 533 locals and 3 849 visitors. The average number of shows that each person attended was 2.3, generating total ticket sales of 28 055 (see Table 2).

Of the total number of visitors, the number who came to Darwin specifically to attend the Festival, or who extended their stay because of the Festival, was 560. Only expenditure by this latter group contributed to the economic impact estimate. The average per capita expenditure of visitors in this group was $2 191 (equal to $1.23 million divided by 560). Visitors in this group spent an average of 10.3 nights in the Territory because of the Festival, implying an average daily expenditure of $213 (see Table 3).

Chart 1: Expenditure by visitors attributable to the Darwin Festival

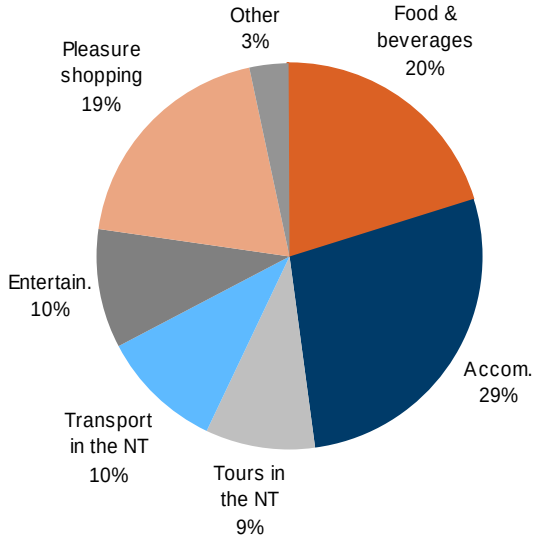

Table 3: Visitors who spent time in NT because of Festival

Number	560
Average per capita expenditure due to Festival	$ 2 191
Average no. of nights in NT due to Festival	10.3
Expenditure per night	$ 213

Methodology

Overview

Since the aim of the study is to measure the net effect of the Darwin Festival, the most important source of data is expenditure by visitors who came to the Territory specifically to attend the Festival. Expenditure by locals, or visitors who would have come to the Territory anyway cannot be counted, as this expenditure would have occurred elsewhere in the economy if the Festival had not been held. Information on visitor expenditure was collected by surveying attendees at a number of ticketed events over the course of the Festival.

Another important source of information used in this study is the revenue of the Darwin Festival organisation, in the form of grants or sponsorship funds, that has come from outside the Territory.

In this study, the direct economic impact of the Festival ($1.37 million) is estimated as the sum of the total visitor expenditure attributable to the Festival (equal to 560 visitors who came specifically for the Festival x $2 191 = $1.23 million) plus the Darwin Festival organisation's external revenue ($146 100).

Value-added multipliers, based on input-output tables for the Northern Territory, are then applied to this total to estimate the overall impact that the Festival has on the Territory economy. This figure captures the flow-on effects that the initial expenditure has on the broader economy. As discussed above, the effect of the multiplier in a small, open economy such as the Territory, often yields a smaller economic impact than the initial change in expenditure, as much of the expenditure goes towards imports to the Territory.

Survey

The survey was designed by Charles Darwin University, in collaboration with Northern Territory Treasury and the Darwin Festival. While expenditure by visitors was the primary focus of the survey, locals were also included for general research purposes, as well as for estimating the total number of Festival attendees.

The survey included questions on visitors' expenditure in a number of expenditure categories within the previous 24 hours. This was then multiplied by the number of days that each visitor spent in the Territory, due to the Festival.

The survey also included questions designed to distinguish those visitors who would have come to the Territory anyway, from those who chose to extend their stay to attend shows. Both of these factors were critical in determining how much expenditure was directly attributable to the Darwin Festival.

Surveys were distributed by Darwin Festival volunteers at a selection of ticketed events throughout the Festival period. In order to achieve a sufficient number of responses from visitors, events were chosen that had a higher likelihood of attracting visitors.

A target sample size of 300 visitors and 300 locals was set in order to generate sufficiently robust statistical results. This target was not reached in the case of visitors, with 247 completed surveys, of which 209 had completed questions related to expenditure. Of these 209 visitors who provided expenditure data, 42 spent all or some of their time in the Territory specifically to attend the Festival. The target of 300 locals was exceeded.

Analysis of survey data

Each visitor's expenditure over the previous 24 hours was multiplied by the number of nights they spent in the Territory due to the Festival. This was either their total length of stay (if they came to the Territory for the festival), or the number of additional nights (if they extended their stay because of the festival).

Total expenditure was calculated by weighting each respondent's expenditure according to the probability of their being included in the survey. This probability is a function of the ratio of visitors to locals attending the Festival, the number of events that each visitor attended, and the total proportion of festival attendees surveyed.

In order to greatly simplify the survey process, this study has used the ratio of visitors to locals estimated in the 2004 Darwin Festival study. It has been assumed for simplicity that this ratio is quite stable over time. However, anecdotal evidence suggests that the national profile of the Festival has increased since 2004[1]; therefore it is possible that there were a greater proportion of visitors attending the 2007 festival compared to the 2004 festival. In this case the approach used will have underestimated the net economic impact of the Festival.

1 The Festival has achieved greater national media exposure since 2004. The 2007 Festival saw large articles on the Festival run in the Sydney Morning Herald, the Melbourne Age, the Canberra Times and the Adelaide Advertiser. There have also been significant increases each year over the last three years in the number of interstate requests for Festival programs.

Multipliers

The multipliers used in this study were produced in 2001 by the former Office of Resource Development of the Northern Territory Government, and refer to financial year 1997-98. These are the latest and only multipliers available for the Northern Territory, and should provide adequate estimates for the purpose of this study. This is because inter-sectoral linkages within the economy are generally not subject to rapid change.

Multipliers for specific industry sectors were applied to the separate categories of visitor expenditure. Industries were chosen that most closely aligned with the expenditure categories.

A weighted multiplier was constructed for the Darwin Festival revenue, using a combination of value-added multipliers for various industries, weighted by the total Darwin Festival expenditure by industry.

Reliability of results

This study was conducted as a pilot, with the aim of developing a methodology that could be further refined and applied in future studies of arts, cultural and other events in the Territory. The results, as previously explained, are experimental. In addition, there were a number of compromises adopted in the methodology that facilitated the survey process and reduced the cost of the study. Future studies, in order to generate more robust results, may need to address some of these issues (see “Possible improvements to future studies” below).

In addition to the above necessary simplifications, a number of assumptions were made in the data analysis phase of the study to account for missing data. These are discussed in “Missing survey data”.

Nevertheless, the results of this study are considered to be a reasonable estimate of the economic impact of the Darwin Festival. The study is broadly consistent with the accepted approach to conducting economic impact studies, and the methodology for conducting the survey and data analysis has been designed according to the approach developed by the National Centre for Culture and Recreation Statistics.

However, the issues outlined above support the view that the results are experimental, and that the actual impact of the Festival may vary from the published figure. As such, any interpretation of the results should be made with the above issues in mind. These are discussed in more detail in the following section.

Issues

1. Missing survey data

There were a number of incomplete survey forms. In most cases, a rule was applied so that the missing response was replaced with a reasonable estimate. For example:

- There were 4 visitors who responded “don’t know” to question 8 (would you have come to Darwin if the festival had not been held?). In most cases we have assumed that these are actually “no” responses (implying that these visitors came to Darwin specifically for the Festival) as uncertainty regarding this question may indicate that the Festival was a factor in the respondent’s decision to come to the Territory. There was one respondent, however, whose expenditure, length of stay and probability weight resulted in an excessive contribution to total expenditure, and was thus considered to be unrepresentative. In this case the respondent was removed from the total. If the “don’t know” responses were assumed to be “yes”, then net visitor expenditure would have been $131 635 lower.
- There were 13 visitors who stated they would spend longer in the Territory because of the Festival, but didn't specify how many additional nights. In this case, the missing value has been replaced by the average number of additional nights of those who gave positive responses (average = 5.9). If the missing values were replaced by 1, being the minimum number of additional nights that the respondent might have stayed, then net visitor expenditure would have been $148 466 lower.
- There were 2 visitors who stated that they would spend additional nights in Darwin because of the Festival, but did not answer question 10 (Does this mean you will stay fewer nights in other parts of the NT?). We have assumed the response to this question would have been “no”, implying that they will not spend fewer nights in other parts of the Territory. This assumption conformed to the answers provided by those respondents who did answer question 10, where there were twice as many “no” responses as “yes” responses.

In addition to the missing data outlined above, there were an additional 15 visitors who reported that they either came to Darwin for the Festival or chose to extend their stay because of the Festival, but who did not provide enough information to calculate their

expenditure contribution. These were, by necessity, omitted from the total altogether. However given that only 42 visitors in the sample contributed to the total expenditure attributable to the Festival, the exclusion of these 15 respondents may have had a significant impact on the estimate.

2. Sampling Error

An area of uncertainty in this study is the degree of sampling error. Due to a number of elements of the adopted methodology[2], it was not possible to calculate standard errors, therefore the degree to which the sample is representative of the total population is difficult to assess. However, there are a small number of outliers in the data – respondents whose expenditure, after being weighted, accounted for a significant proportion of the total visitor expenditure.

Nevertheless, the sample size of 247, while lower than the target of 300, is still considered to be adequate to generate results with an acceptable level of reliability. Importantly, the publication *Measuring the Impact of Festivals – Guidelines for conducting an economic impact study* recommends that a minimum of 30 surveys need to be obtained from visitors who came to the area specifically for the festival. This study achieved a total of 42 visitors who spent time in the Territory specifically because of the Darwin Festival.

3. Exclusion of free events

As robust estimates of audience numbers are a critical component of the analysis of visitor expenditure, only ticketed events were targeted in the survey. By necessity, free events were excluded as visitor numbers were difficult to obtain at free shows. Therefore the results of the study only represent expenditure by visitors who attended ticketed shows. While the survey captured Festival goers who attended both ticketed and free events, anyone who only attended free events is not represented in the results.

This is particularly important, as the Darwin Festival's estimate of total attendances at free events was 42 636, much greater than the total number of ticket sales (28 055). In addition, according to the survey data, the estimated number of attendances at free events by people who also attended one or more ticketed event was 18 596. This implies that the remaining 24 040 attendances (42 636 minus 18 596) at free events were by people who *only* attended free events. Their expenditure on items other than tickets has not been included, the assumption being that this group is composed mainly of locals. As such, expenditure by this group represents expenditure that would otherwise have occurred in some other sector of the economy, had the Festival not taken place.

Nevertheless, while it seems unlikely that there would be many visitors who came to the Territory specifically for the Festival, but only attended free events, it is plausible that some visitors may have extended their stay to attend free events. Therefore it may be of value to include free events in the survey in future studies.

4. Assumptions related to the Darwin Festival data

The Darwin Festival organisation provided detailed data on revenues related to the 2007 Festival that were sourced from outside the Territory, which were then added to the visitor expenditure data. Implicit in this approach is the assumption that these specific financial flows into the Territory would not have occurred had the Festival not taken place. However it is possible, for example, that some of the sponsorship funds from interstate or international companies may have been competed away from other organisations in the Territory, and thus not represent an injection of new funds into the economy. Nevertheless, it is likely that the Darwin Festival's scale and high attendance results in some degree of expansion of the available pool of sponsorship funds, rather than simply reallocating these funds from other projects or events.

Possible improvements to future studies

The following elements were not included in this study, but could be considered for future studies to improve their accuracy and reliability.

- Adopt a random sampling procedure that enables calculation of standard errors.
- Directly measure the ratio of visitors to locals. As with the above point, this would involve a more rigorous sampling procedure, requiring a greater level of expertise on the part of survey volunteers.
- Include free events in the survey to capture any visitors who came for the Festival, but only attended free events. This would require

2 The sampling methodology used was not strictly random, as it targeted events more likely to attract visitors, and set a quota of visitors and locals to be surveyed. In addition, the estimate of the proportion of visitors to locals was based on the previous study of the 2004 Darwin Festival.

developing a methodology for accurately estimating audience numbers at these shows.

- Directly target Festival participants who have come from outside the study area. This group is a potentially large source of expenditure, as many, if not all, would not have come to the Territory if not for the Festival. While some of these attendees were polled in the audience survey, it is possible that they were underrepresented.
- Include a question in the survey to identify time-switchers. These are visitors who came to the Territory because of the Festival, but would have come at another time if the Festival had not been held. Expenditure by this group should be omitted from the estimate of total economic impact.
- Include a survey question to capture expenditure on international/interstate travel. The survey used in this study only asked visitors about their expenditure on transport within the Territory. As much of the value of interstate or international travel expenditure would end up outside the Territory, a methodology would need to be developed for allocating a proportion of the total value to the Territory.
- Target locals who chose to attend the Festival instead of holidaying elsewhere. This group's expenditure should be added to the economic impact estimate.

Conclusion

While these results are experimental in nature, they do provide an estimate of total visitor expenditure attributable to the 2007 Darwin Festival, of $1.23 million; and total economic impact of $1.14 million.

The methodology adopted is largely consistent with the accepted approach to conducting economic impact studies, and the results are considered to be reasonably conservative. However, as it was not possible to calculate standard errors, the degree to which the sample is representative of the total population is difficult to assess.

The study also outlines future avenues of research and issues to be overcome to improve the statistical robustness of the results.

References

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